



MEMORANDUM

Missouri Department of Transportation

St. Louis District

TO: Kathy Harvey
State Design Engineer

CC: Jim Smith – de
Jon Nelson - tr

FROM: Lee Hillner *LH*
Transportation Project Manager

DATE: May 2, 2013

SUBJECT: Route 141, St. Louis County
ITS Expansion Project - Job No. J6Q3002
Proprietary Item (Sensys Networks)
Public Interest Finding Request

I do hereby certify that in accordance with the requirements of 23 CFR 635.411(a)(2), this patented or proprietary item is essential for synchronization with existing highway facilities.

Kathryn P. Harvey 5-313
Kathryn P. Harvey, State Design Engineer

With respect to the above-mentioned project, we request approval of a finding in the public interest to use the Wireless Vehicle Detection System manufactured by the Sensys Networks.

This project includes installation of an in-pavement, wireless detection system for the purpose of providing travel times and vehicle count and classification data on Route 141 from Route 340 to Route 370. Accurate travel times will be viewable to the public on a web-based graphical display. Installation of a travel time system is a part of the overall data collection ability of the Sensys Networks detection probes.

Based on the evaluation of the current system and the integration risk of alternative systems, the St. Louis District of the Missouri Department of Transportation-MoDOT respectfully requests the approval of a finding in the public interest to continue to use the Sensys Networks system for the deployment along this project corridor.

Existing Sensys Deployment

There is a portion of the project limits that currently has the Sensys Networks travel time and vehicle count/classification system already in use. For system accuracy, the district needs to maintain the existing system and expand the coverage along the corridor without introducing overlapping travel time calculations. Additional detection probes being installed along this corridor will accumulate volume, speed and occupancy data at select locations along the corridor.

The installation of a travel time system is a part of the overall data collection ability of the Sensys Networks detection probes. This system consists only of detection probes, antenna receivers, and repeaters (as needed for locations where the antennas are too far away from the probes' signal). The antenna receivers are plugged into the MoDOT Ethernet field switches located at the nearest traffic signal or ITS device cabinet. Through this connection, the system is then tied into the MoDOT communications network and data is streamed back to a central server configuration at the St. Louis District Traffic Management Center. This server reads and accumulates the data and outputs reports and dynamic information to be displayed on a graphical overlay on a Google map in real-time for public use.

Synchronization with the Current System

The district has made a significant investment in the current travel time and vehicle count/classification system throughout the metro area deploying over 2500 detection probes along the arterial network.

This investment involves all elements of the deployment, including:

1. Configuring the system database and central software
2. Field testing and calibrating the Sensys Networks detection probes and antenna receivers
3. Training staff on the use and maintenance of the equipment
4. Maintaining the spare parts inventory of equipment
5. Integrating with the Advanced Traffic Management System (ATMS) software

These above items have been coordinated and are on-going for existing interchange locations along the Route 141 corridor at: Route 370, I-70, Route 364 and Route 340.

Discussion of Alternatives

Research of alternative systems indicates that other than the Sensys system, there is not a singular system which reasonably meets the current needs and requirements of the MoDOT travel time and count/classification system. There is Bluetooth system technology that can provide the arterial travel time information, but would require the deployment of a new database and integration with the ATMS software. This would require substantial additional resources of staff and budget to complete this deployment and integration. It would also require an increase in staff training for deployment and maintenance. The Bluetooth system would not be able to provide the same detailed vehicle count/classification data, which would require additional, independent sensors and systems. An alternative system would also require the management of an additional spare parts inventory, and require additional staff training on use and maintenance of such systems.

Traditional non-intrusive side-fire microwave traffic sensors can provide the desired count and classification data. This alternative, however, will not provide arterial travel time information as needed to meet the intent of the current system. This type of sensor system would also require an additional database and integration with the ATMS software.

In conclusion, if either of the two alternative systems were deployed on this corridor, the cost to integrate and maintain the arterial travel time, vehicle traffic count, and vehicle classification is expected to be significantly greater than the Sensys Network deployment. It is also expected to introduce additional complexities in regards to staff maintenance and operations. Additionally, the system deployment on this corridor represents a small system expansion when compared to the overall St. Louis metro area deployment.

Therefore, expansion of the existing Wireless Vehicle Detection System manufactured by Sensys Networks is the appropriate option for this project. Approval of this request at your earliest convenience would be appreciated. This project is scheduled for August 2013 bid opening.

Approved by:

Kathy Harvey, State Design Engineer

Date: _____